

## Deputy administrator visits Stennis



NASA Deputy Administrator Lori Garver (right) and Stennis Space Center Director Rick Gilbrech discuss the future of the agency during an all-hands session on May 3. Garver also toured Stennis test facilities during her visit, joined by U.S. Rep. Steven Palazzo, R-Miss., and members of local media.

The tour featured a visit to the B-2 Test Stand, where Garver was briefed on preparation work for testing the core stage of NASA's new Space Launch System. Garver held a question-and-answer session with media members to discuss the testing and space exploration plans.

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NASA tests a Saturn S-1C-5 rocket stage on the B-2 Test Stand at Stennis Space Center on Aug. 25, 1967. To read about future testing on the stand, see Pages 5-6.

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*“Stennis is a great place to be. The nation is counting on us to do what we do best. A can-do resolve and a spirit of gratitude. That’s the Stennis family.”*



From the desk of  
**Pam Covington**

Manager, Office of Communications, Stennis Space Center

**A** mission to an asteroid, how exciting. We are going to lasso an asteroid, park it on the far side of the moon and send humans to visit and explore it. I heard someone describe the asteroid mission in these simple terms, and I thought, how awesome is that. And what makes it even more awesome and special is that we, Stennis Space Center employees, are contributing to the front end of the critical path that will get us there.

Stennis is a great place to be, and there is a lot going on. From engine testing and commercial partnerships to construction and facility refurbishment to coastal mitigation programs to the Governor’s recent announcement of \$10.4 million restoration initiatives at INFINITY.

In times of fiscal challenges, it is more important to keep key stakeholders informed and engaged. Our center director recently provided an update on our activities to over 100 elected officials and community leaders to equip them to be better ambassadors for NASA and Stennis.

NASA, like many agencies, is working through the challenges of a process called sequestration. When I think about the many budget exercises we have been working through over the past weeks in response to the impacts and potential impacts of sequestration, I am reminded of something I read that talked about re-

solve and gratitude. It talked about striving for resolve to have the courage, boldness and steadfastness to travel the road less traveled and a big dose of gratitude that turns what you have into enough. Resolve and gratitude. These are two words that I easily associate with the Stennis family.

We have proven our resolve countless times. You see the gratitude on our faces and hear it in our voices as we talk about our work and what Stennis means to the economic development of our communities. You see it in our responses to surveys that rank Stennis among the best places to work in the federal government. You see it in our eagerness to share our model for efficiencies and best practices. You hear it in our presentations and conversations as we talk with the next generation about staying in school and pursuing science, technology, engineering and math disciplines.

Stennis is a great place to be. Our unique facilities and the high-level missions of over 30 resident agencies make us a national asset. The nation is counting on us to do what we do best. A can-do resolve and a spirit of gratitude. That’s the Stennis family.

*Pam*

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## FULFILLING NASA'S EXPLORATION MISSION

## NASA partner Orbital Sciences test launches Antares rocket

NASA commercial space partner Orbital Sciences Corporation launched its Antares rocket April 21 from the new Mid-Atlantic Regional Spaceport Pad-0A at the space agency's Wallops Flight Facility in Virginia.

The test flight was the first launch from the pad at Wallops and the first flight of Antares, which delivered the equivalent mass of a spacecraft, a so-called mass simulated payload, into Earth's orbit. Antares was powered by a pair of Aerojet AJ26 engines tested at NASA's Stennis Space Center.

"Today's successful test marks another significant milestone in NASA's plan to rely on American companies to launch supplies and astronauts to the International Space Station, bringing this important work back to the United States where it belongs," NASA Administrator Charles Bolden said. "Congratulations to Orbital Sciences and the NASA team that worked alongside them for the picture-perfect launch of the Antares rocket."

The test of the Antares launch system began with the rocket's rollout and placement on the launch pad April 6, and culminated with the separation of the mass simulator payload from the rocket. The completed flight paves the way for a demonstration mission by Orbital to resupply the space station later this year. Antares will launch experiments and supplies to the orbiting laboratory carried aboard the company's new Cygnus cargo spacecraft through NASA's Commercial Resupply Services (CRS) contract.

"Today's successful test flight of Orbital Sciences' Antares rocket from the spaceport at Wallops Island, Virginia, demonstrates an additional private space-launch capability for the United States and lays the groundwork for the first Antares cargo mission to the International Space Station later this year," said John Holdren, director of the NASA Office of Science and Technology Policy.

Orbital is building and testing its Antares rocket and Cygnus spacecraft under NASA's Commercial Orbital Transportation Services (COTS) Program. After successful completion of a COTS demonstration mission to the station, Orbital will begin conducting eight planned cargo resupply flights to the orbiting laboratory through NASA's \$1.9 billion CRS contract with the company.

NASA initiatives, such as COTS, are helping to develop a robust U.S. commercial space transportation industry with the goal of achieving safe, reliable and cost-effective transportation to and from the International Space Station and low-Earth orbit. NASA's Commercial Crew Program also is working with commercial space partners to develop capabilities to launch U.S. astronauts from American soil in the next few years.

For information about upcoming Orbital test flights and links to NASA's COTS and commercial crew programs, visit: [www.nasa.gov/orbital](http://www.nasa.gov/orbital).



The Antares rocket launched by Orbital Sciences Corporation on April 21 was powered by a pair of Aerojet AJ26 engines tested for flightworthiness at Stennis Space Center. Engine No. 6 was tested on the E-1 Test Stand at Stennis

on Sept. 28, 2011 (left inset). Engine No. 7 was tested at Stennis on Nov. 17, 2011 (right inset). Both were tested at full duration by a team of NASA, Orbital Sciences and Aerojet engineers.

## FULFILLING NASA'S EXPLORATION MISSION

# Apollo-era test stand being prepared for SLS core stage testing

Before NASA's new Space Launch System (SLS) flies to space on its inaugural mission in 2017, it will fly in place at the agency's Stennis Space Center in Mississippi.

The B-2 Test Stand at Stennis, originally built to test Saturn rocket stages that propelled humans to the moon, is being completely renovated to test the SLS core stage in late 2016 and early 2017. The SLS stage, with four RS-25 rocket engines, will be installed on the stand for propellant fill and drain testing and two hot-fire tests.

"These tests will help us understand how the spacecraft and engines behave and provide critical information for ensuring mission safety," said Rick Rauch, manager of the B-2 Test Stand Restoration, Buildout and Test Project. "After all, if there are problems, it's better to address them on the ground than in the air."



(Above photo) Stennis Space Center Director Rick Gilbrech points out work under way on the B-2 Test Stand in preparation for core stage testing for NASA's new Space Launch System. He is joined on the May 3 tour of the stand by NASA Deputy Administrator Lori Garver (r to l), U.S. Rep. Steven Palazzo, R-Miss. and B-2 Test Stand Design Lead Tom Jacks.

(Right photo) The B-1/B-2 Test Stand is a dual-position, vertical, static-firing structure built at Stennis Space Center in the 1960s. First stages of the Apollo Saturn V rocket were tested on the stand from 1967 to 1970. Space shuttle main propulsion test articles also were tested on the stand. Stennis now leases the B-1 test position to Pratt & Whitney Rocketdyne for testing of RS-68 engines.

NASA is developing the SLS to send humans deeper into space than ever before – to places like an asteroid and Mars. The SLS will launch NASA's Orion spacecraft and other payloads from the agency's Kennedy Space Center in Florida. The SLS program is managed at Marshall Space Flight Center in Huntsville, Ala. The first test flight of SLS will be in 2017. The rocket will send an uncrewed Orion spacecraft around the moon.

Stennis engineers were asked early in the SLS development process to determine the cost of restoring the B-2 stand to the condition needed for green-run testing of the spacecraft's core stage. A green run is the first time the engines are assembled into a single configuration with the core stage and fired at nearly full power. This will test the compatibility and functionality of the system to ensure a safe and viable design.

The team spent 18 months conducting structural, mechanical and electrical system evaluations to assess the work needed since Apollo- and space shuttle-era testing. Once the decision was made to proceed with core stage testing, Stennis engineers began converting original hand-drawn facility blueprints into computer models so design work could be completed. The actual renovation work was divided into three phases: restoration, buildout and special test equipment.

"In the first phase, we are restoring the test facility to its original design condition, where it could be used to test any number of stages," Rauch explained. "In the second phase, we will focus on building out the stand specifically to accommodate the SLS core stage. Then, in the third phase, we will complete the structural, mechanical and electrical interfaces required to test the core stage."

Each phase involves assessment, design and contractor support. In the end, no area of the stand will be left untouched, including all structural areas, as well as supporting mechanical, electrical and piping systems. The fundamental design of the stand will not be changed since it was built to test rocket stages.

However, the SLS stage is different from the Saturn stages and the space shuttle main propulsion test article installed and fired on the stand in earlier years. The SLS core stage is taller, standing 212 feet. To lift the stage into place, the derrick crane atop the B-2 stand must be extended 50 feet. The stand's weight and thrust takeout structures also must be modified, and a higher support frame must be erected. The process will involve repositioning an existing 1.2-million-pound frame about 20 feet and building a new 100-foot-tall superstructure atop it.

"The teams at the Stennis Space Center are doing a great job preparing the B-2 facility," said John Rector, SLS stages green run test manager at Marshall. "We're on track to begin testing there in 2016. It's an exciting time for NASA as we establish a new national capability for future space exploration."

Demolition work began on several test stand levels late last summer. Structural restoration has begun. Work is to be completed in time for delivery of the SLS core stage in 2016, with installation and testing to follow.

For more information on NASA's SLS Program, visit: [www.nasa.gov/sls/](http://www.nasa.gov/sls/)



## FULFILLING NASA'S EXPLORATION MISSION

# NASA completes round of testing on next-generation J-2X engine

Engineers developing NASA's next-generation rocket closed one chapter of testing with the completion of a J-2X engine test series on the A-2 Test Stand at the agency's Stennis Space Center in south Mississippi, and will begin a new chapter of full-motion testing on test stand A-1.

The J-2X will drive the second stage of the 143-ton (130-metric ton) heavy-lift version of the Space Launch System (SLS). The rocket will provide an entirely new capability for human exploration and send humans in NASA's Orion spacecraft into deep space.

J-2X engine No. 10002 was fired for the last time on the A-2 Test Stand at Stennis on April 17. This engine set a duration record for J-2X engine firings at Stennis' A-2 Test Stand on April 4 when it fired for 570 seconds, beating the previous mark set less than a month earlier on March 7, when the same engine ran for 560 seconds.

This is the second J-2X engine Stennis has test fired. Last year, test conductors put the first developmental J-2X engine, called No. 10001, through its paces. According to J-2X managers, both performed extremely well.

When the engine is eventually used in space, it will need to be able to move to help steer the rocket.

"The A-1 is designed to allow us to gimbal, or pivot, the J-2X during a live firing and test the range of motion for the engine's flexible parts," said Gary Benton, manager of the J-2X test project at Stennis. "This type of testing hasn't been performed since the space shuttle main engines were tested on the stand."

Those space shuttle main engines, also called RS-25s, will make a return to the test stand in 2014. A collection of RS-25 engines, which were used to launch 135 space shuttle missions, will be rated to operate at a higher power level and used to launch the core stage of the SLS.

"While we will get valuable data on the engine from the firing and gimbaling of the J-2X, we're also re-testing the function of the A-1 stand," said Mike Kynard, manager of the SLS Liquid Engines Office at NASA's Marshall Space Flight Center in Huntsville, Ala., where the SLS Program is managed. "Using A-1 to work on the J-2X gives us a great opportunity to ensure the stand will be capable and ready to test the RS-25s."

The March 7 test, which set the short-lived duration record, was remarkable for another reason in that it marked the first time a 3-D printed part was hot-fire tested on a NASA engine system.



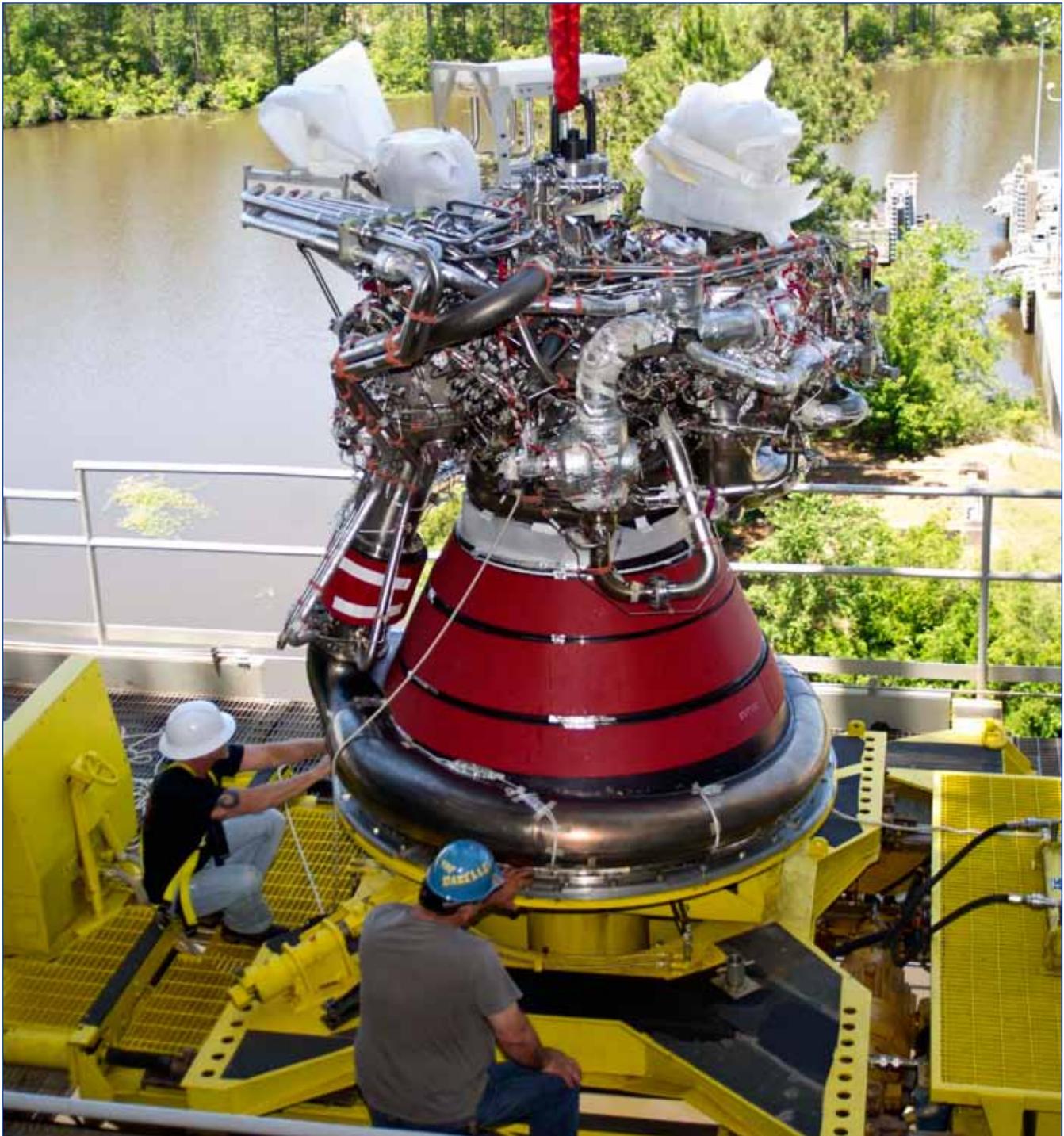
NASA conducts the final test of J-2X engine No. 10002 on the A-2 Test Stand at Stennis Space Center on April 17. The engine now will undergo gimbal testing on the A-1 Test Stand while the A-2 facility prepares for arrival of J-2X engine No. 10003.

The prime contractor for the liquid engine, Pratt & Whitney Rocketdyne of Canoga Park, Calif., built a maintenance port cover for the No. 10002 engine using an advanced manufacturing process called selective laser melting. This construction method uses lasers to fuse metal dust into a specific pattern to build the needed part.

"This demonstrates affordable manufacturing in a revolutionary way," Kynard said. "The maintenance port cover built with selective laser melting cost only 35 percent of the cost to make the same part using traditional methods. It performed well enough that we have started building other rocket engine parts using this advanced process, which takes days instead

of months. It is a significant savings and one that we'll take advantage of when we build engine parts in the future."

The SLS will first launch during Exploration Mission-1 in 2017, a flight test that will send an uncrewed Orion spacecraft around the moon.

**FULFILLING NASA'S EXPLORATION MISSION**

## **A-1 Test Stand houses first full engine in nearly a decade**

Engineers install J-2X engine No. 10002 in the A-1 Test Stand at NASA's Stennis Space Center. The installation is in preparation for a new series of tests, where the engine will be gimbaled, or pivoted, during test firings. Gimbal tests are an important part of the design process. When this upper-stage engine is used in space, it will need to be able to move freely to steer NASA's Space Launch System, or SLS – an advanced heavy-lift launch vehicle that will provide an entirely new national capability for human exploration beyond Earth's orbit. This is the first full engine to be installed in the A-1 Test Stand in almost a decade and the first time gimbal tests will be performed since testing on the space shuttle main engines. A series of tests was completed on the No. 10002 engine in the A-2 Test Stand prior to its installation on the A-1 stand at Stennis. Once this series of tests is complete, the engine will be removed, and preparations will be made to begin testing the RS-25 engine on the A-1 stand in 2014. RS-25 engines from the space shuttle inventory will power the core stage of SLS while the J-2X engine will power the upper stage of the evolved launch vehicle. The SLS Program is managed at NASA's Marshall Space Flight Center. The J-2X engine is being built by Pratt & Whitney Rocketdyne.

## FULFILLING NASA'S EXPLORATION MISSION



## Mars mission continues; NASA team recognized

The Mast Camera (Mastcam) on NASA's Mars rover Curiosity showed researchers interesting internal color in this rock called "Sutton\_Inlier," which was broken by the rover driving over it. Mastcam took this image Jan. 31, 2013. The rock is about 5 inches wide at the end closest to the camera. This view is calibrated to estimated "natural" color, or approximately what the colors would look like if we were to view the scene ourselves on Mars. The inside of the rock, which is in the "Yellowknife Bay" area of Gale Crater, is much less red than typical Martian dust and rock surfaces, with a color verging on grayish to bluish. In news related to Curiosity and its two-year Mars mission, a pair of prominent aerospace industry organizations have recognized the contributions of NASA, especially the achievements of the team that landed NASA's Curiosity rover on Mars in August, with coveted awards. The National Aeronautic Association presented its Robert J. Collier Trophy to the Mars Science Laboratory Team of NASA's Jet Propulsion Laboratory in Pasadena, Calif., on May 9. A day earlier, the team received the American Institute of Aeronautics and Astronautics (AIAA) Foundation Award. AIAA also conferred its highest recognition, the title of honorary fellow, on NASA Associate Administrator for Human Exploration and Operations William Gerstenmaier. The group presented NASA's associate administrator for science, astronaut John Grunsfeld, with the AIAA National Capitol Section Barry Goldwater Educator Award. Image credit: NASA/JPL-Caltech/MSSS/ASU.

## NASA in the News

### NASA selects proposals

NASA has selected four small business proposals involving technologies being developed for the Office of the Chief Technologist at Stennis Space Center for contract negotiations and continued development. The proposals were selected through NASA's Small Business Innovation Research (SBIR) Program and Small Business Technology Transfer (STTR) Program. "The awards are a wonderful affirmation of the innovative efforts being sought by Stennis to help keep us on the cutting edge in what we do," Stennis Chief Technologist Ramona Travis said. "The selected projects hold great promise not only for Stennis but also for other programs at multiple NASA centers across the agency, as well as for commercial ventures. We are very excited about their continued development towards readily usable technologies." Stennis-related SBIR proposals selected are:

- "Polyoxometalate and Zirconium-Phosphate Conversion Coating for Steel Piping" with International Scientific Technologies Inc. in Dublin, Va.
- "Automated Semantic Enrichment for Data Discovery and Decision Support" with GeoVisual Technologies Inc. in Boulder, Colo.

Stennis-related STTR proposals are:

- "Energy Efficient LED Spectrally Matched Smart Lighting" with Innovative Imaging and Research Corp. at Stennis and the University of Houston at Clear Lake.
- "Hydrogen-Based Energy Conservation System" with Sustainable Innovation, LLC and the University of Connecticut.

For a complete list of selected companies, visit: <http://sbir.nasa.gov>

For the latest NASA news, visit online: [www.nasa.gov/news/releases/latest/index.html](http://www.nasa.gov/news/releases/latest/index.html)

# Stennis construction affects local communities

*Note: For more than 50 years, NASA's John C. Stennis Space Center has played a pivotal role in the success of the nation's space program. This month's Lagniappe highlights a chapter in the history of the south Mississippi rocket engine test center.*

In 1995, late Stennis Space Center Director Roy Estess designated May as “History Awareness Month” in honor of the center’s first tree-cutting for construction on May 17, 1963. The tree was located in Devil’s Swamp near the site where the construction dock was built on the turn basin of the man-made canal system.

The building of the test facility was the largest construction project in the history of Mississippi and one of the largest of its kind in the United States during that time. Five Hancock County towns – Gainesville, Napoleon, Logtown, Santa Rosa and Westonia – were located in the area selected by NASA for its test facility. The area was selected mainly because of access to water and roads, isolation from populated communities, availability of utilities, community support within a 50-mile radius and a year-round climate for testing.

By the time NASA made its site selection, all of the five towns were declining. However, all had deep roots and histories, as the following vignettes indicate.

Gainesville was the home of longtime resident Cora Blue Davis, who refused to leave her home and remained on the front porch in a rocking chair for the three-hour haul to Jackson Landing near Picayune on July 25, 1962. Her niece, Mrs. Freeman Davis, went along for the ride. Davis rode up the highway under the care of Daley Dronet, the house mover.

Logtown was home of Weston Lumber Company, which was one of the most successful operations in Mississippi for 25 years, exporting 90 percent of its lumber overseas, carrying the lumber fame of Logtown into ports around the world. At one point in its existence, it employed more than 1,200 people.

Santa Rosa’s First Baptist Church disbanded November 1963 and turned \$36,171.51 over to the Mississippi Baptist Foundation in Jackson to be kept in a trust as a memorial fund honoring the church. Income from the trust fund went to maintenance of world missions through the Cooperative Program of the Mississippi Baptist Convention.

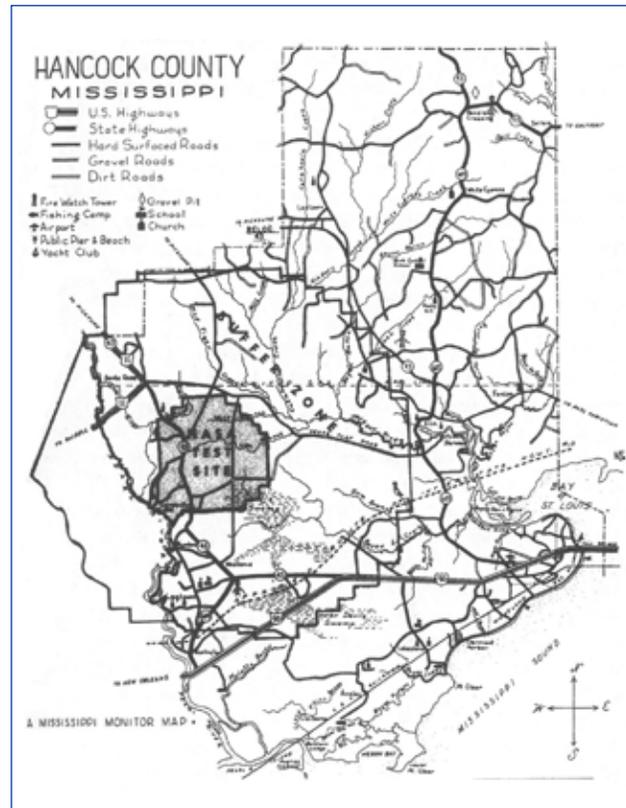
Napoleon was named in honor of French emperor Napoleon Bonaparte’s brother, Jerome, who hid in the area after being chased up the Pearl River. Legend holds that Jerome was seeking to raise money to get his famous French brother out of exile.

Westonia was named after Horatio Weston, the son of Henry Weston, who was owner of the H. Weston Lumber Co., once a multimillion-dollar sawmill. Westonia, a small settlement, was built along the lumber company’s railroad. It was known for train engines and flatcar repairs.

Construction of Stennis facilities necessitated the relocation of 660 families in the towns to other areas. The U.S. Army Corps of Engineers opened a real estate project office in 1962 to begin land acquisition negotiations with the residents and property owners in the area. Samantha B. Kellar was the first person to sell property to NASA on May 2, 1962.

The purchase consisted of her six-room house and 12 acres of land. The Kellars were born and raised in the Aaron Academy community and so were their families for four generations.

Stennis still lies within the boundaries of the original 138,800-acre site. All Stennis facilities are located within the 13,800-acre “fee” area where Gainesville once existed and which is now owned by the federal government. The “fee” area is surrounded by a 125,000-acre acoustical buffer zone made up of the former towns of Logtown, Napoleon, Santa Rosa and Westonia. The buffer zone is designated a national asset.



A 1961 map shows the location of the Stennis Space Center rocket engine test site, 45 miles east of New Orleans, along the East Pearl River in Hancock County, Miss. The 13,800-acre “fee” area, or the fenced-in main portion of the test site, is shown in the center. The 125,071-acre acoustical buffer zone extends outward about six miles.

## Office of Diversity and Equal Opportunity

# Law prohibits disability discrimination in employment

*“Every human being is intended  
to have a character of their own;  
to be what no others are,  
and to do what no other can do.”*

**William Ellery Channing**

The Americans with Disabilities Act (ADA) defines disability as any physical or mental impairment that substantially limits one or more major life activities, a history of having such an impairment or being regarded as having such an impairment. Impairment to major bodily functions is also considered a disability.

The ADA prohibits employers from discriminating against people with disabilities. The Equal Employment Opportunity Commission (EEOC) maintains a list of nine “targeted disabilities” considered most likely to result in job discrimination. The list is used in planning affirmative action programs. However, the ADA prohibits job discrimination against people with any kind of physical or mental disability, not just those on the targeted list.

### Definition of Targeted Disabilities

The EEOC defines targeted disabilities as deafness, blindness, missing extremities, partial paralysis, complete paralysis, convulsive disorders, mental illness and genetic or physical conditions affecting the limbs and/or spine. Epilepsy and other convulsive disorders are also targeted disabilities eligible for Schedule A hiring.

### Schedule A Hiring

Recognizing the importance of hiring capable employees who are otherwise on the margins of the workforce due to a disability, federal policy allows managers to hire persons with targeted disabilities without using the competitive hiring process. Candidates with targeted disabilities submit evidence of their eligibility and job qualifications to the program coordinator for the federal agency where they have an interest in working. The program coordinator circulates a list of eligible candidates with targeted disabilities to hiring managers. If the manager believes a candidate with a targeted disability is a good match for a job, the supervisor is permitted to immediately hire the candidate.

Stennis Space Center currently has 1.3 percent of its employees self-identifying as “not identified” in terms of disabilities. This can mean they do not see their disability listed but consider themselves as having a disability or they do not wish to identify what their disability is. There are 10.3 percent of Stennis employees that self-identify as having one of the disabilities listed by the ADA. Employ-

ees self-identifying with a targeted disability comprise 1 percent of the current Stennis workforce. This places the center well below the federal goal of 2 percent.

### Hiring Statistics

Despite an emphasis on hiring persons with targeted disabilities, Schedule A employees only make up about 1 percent of the almost 2.5 million federal employees. According to the U.S. Equal Employment Opportunity Commission, of the Schedule A employees hired by federal agencies, almost half of them are employed in the lower-paying grades of GS-1 through GS-8 of the federal pay scale, with only 6 percent at the highest pay grades of GS-14, GS-15 or senior executive service.

The social and technological changes of prior centuries have made possible a new conception of what it means to be a person with a targeted/non-targeted disability. This is not to say that the stigma has vanished because it has not; those sorts of social changes occur very slowly.

Nonetheless, persons with disabilities are valuable people, worthy of dignity and respect, capable of growing and learning and desiring the same things that every other citizen does: meaningful work, a comfortable and secure home, good friends and a loving family. When provided with proper support, skills training and education, these goals are within their reach. With this perspective, people with disabilities are being integrated into many mainstream schools, workplaces and communities as they enjoy their lives as productive citizens.

Stennis employees are encouraged to go into Employee Express online and update their self-identification of disability. If additional information is needed, please contact Brian Hey at 228-688-1249.

## Hail & Farewell

### NASA bids farewell to the following:

<b>Katie Wallace</b>	Education Officer Office of Education
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### And welcomes the following:

<b>Derek Zacher</b>	AST, Experimental Facility Development Engineering & Test Directorate
<b>Mitchell Krell</b>	AST, Computer Scientist Center Operations Directorate

## Stennis DEVELOP interns conclude spring term

The NASA DEVELOP national internship program at Stennis Space Center successfully closed its largest spring term of 10 students and three young professionals last month with a presentation of two environmental research projects.

The first of the projects involved continuation of work begun during the fall 2012 DEVELOP term. Spring students used experimental tropospheric ozone data produced at NASA Goddard Space Flight Center in Greenbelt, Md., to enhance the U.S. Forest Service's ground-level ambient ozone monitoring program.

The second project used night lights data from the Visible Infrared Imaging Radiometer Suite onboard one of NASA's newest satellites, Suomi NPP, to study the spatial and temporal patterns of natural gas flaring and to investigate potential contributions to degraded air quality in rural Texas and North Dakota.

In DEVELOP-related news, Marco Allain and Jason Jones, both alumni of the Stennis program, recently published research in "The Geographical Bulletin," a scholarly journal published twice a year by the international geographical honor society Gamma Theta Upsilon. The paper, entitled "Nonpoint Source Pollution Risk Mapping for Alabama's Big Creek Lake," discusses results from a 2009 Stennis DEVELOP project to analyze potential sources for runoff in the watershed of Big Creek Lake, the drinking water reservoir for Mobile, Ala. This paper is included in the May 2013 edition of the journal (Vol. 54, No. 1, pp. 1-23).

The publication accomplishment is particularly noteworthy because most DEVELOP projects are short-term applied science demonstrations that do not yield peer-reviewed research articles. In fact, the paper by the Stennis alumni is one of only four DEVELOP projects across the nation that have been published in peer-reviewed journals during the last 15 years.

"This is an excellent example in which undergraduate college students were able to take full advantage of the NASA DEVELOP Program's opportunities by not only completing an applied science research project, but also more importantly by reporting the project's findings as a peer-reviewed journal paper," said Joe Spruce, science adviser to the Stennis DEVELOP Program and a senior scientist supporting the NASA Applied Science and Technology Project Office.

Allain and Jones credit their time as DEVELOP students as foundational to their professional development, especially the experience of going through the peer-review journal publication process.

Allain graduated from the University of New Orleans in 2009 and is pursuing a master's degree while working as a formation geologist for DHI Services, Inc. in Bakersfield, Calif. Jones is a DEVELOP "Young Professional" intern at Stennis with plans to enroll later this year in the Academy of Military Science at Maxwell Air Force Base in Montgomery, Ala., to become an officer in the Mississippi Air National Guard before receiving specialized undergraduate pilot training with the U.S. Air Force.

## Stennis celebrates Earth Day

Patrick Bourne of the Naval Oceanographic Office at Stennis Space Center looks through the ECO-Collection by REpurposingNOLA at the Stennis Earth Day observance on April 23. Stennis employees observed Earth Day with an expo featuring environmentally focused displays by A<sup>2</sup>Research, the Environmental Protection Agency's Gulf of Mexico Program and the Stennis Energy Group, displays of eco-friendly merchandise for purchase and donated door prizes.

